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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.
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09/509,126 03/22/00 JONES

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CHARLES E DUNLAP  
HOWELL & HAERKAMP  
7733 FORSYTH BOULEVARD  
SUITE 1400  
ST LOUIS MO 63105

EXAMINER

CYGAN, M

ART UNIT

PAPER NUMBER

2856

DATE MAILED: 04/03/01

Please find below and/or attached an Office communication concerning this application or proceeding.

Commissioner of Patents and Trademarks

# Office Action Summary

Application No.

09/509,126

Applicant(s)

JONES ET AL.

Examiner

Michael Cygan

Art Unit

2856

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

## Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

## Status

- 1) ☒ Responsive to communication(s) filed on 14 March 2001.
- 2a) ☒ This action is FINAL. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

## Disposition of Claims

- 4) ☒ Claim(s) 1-26 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-22 and 24-26 is/are rejected.
- 7) ☒ Claim(s) 23 is/are objected to.
- 8) ☐ Claims \_\_\_\_\_ are subject to restriction and/or election requirement.

## Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are objected to by the Examiner.
- 11) ☒ The proposed drawing correction filed on 14 March 2001 is: a) ☒ approved b) ☐ disapproved.
- 12) ☐ The oath or declaration is objected to by the Examiner.

## Priority under 35 U.S.C. § 119

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

## Attachment(s)

- 15) ☐ Notice of References Cited (PTO-892)
- 16) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 17) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) \_\_\_\_\_
- 18) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 19) ☐ Notice of Informal Patent Application (PTO-152)
- 20) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Drawings*

1. The corrected or substitute drawings were received on 14 March 2001.

These drawings are acceptable.

### *Claim Rejections - 35 USC § 103*

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over de Boer (SPE Production & Facilities 1995) in view of Gopinathan (U.S. 5,853,994). De Boer discloses a method for measuring the agglomerative state of asphaltenes in oil comprising applying to the oil a signal of acoustic energy, thereby scattering part of the energy; detecting the backscattered energy, and determining the agglomerative state of the asphaltenes. See page 58, right column.

With respect to claims 1, 4, 5 and 16, De Boer does not teach a selected frequency range in which the magnitude of the scattered signal is resolved at selected frequencies. Gopinathan discloses a method for measuring agglomeration of particles in a fluid comprising applying to the fluid a signal of

acoustic energy, thereby scattering part of the energy; detecting the scattered energy, and determining the agglomerative state of the particles wherein a frequency range is selected in which the magnitude of the scattered signal is resolved at selected frequencies. See column 6 and Figure 3.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to use the method of magnitude vs. frequency as taught by Gopinathan in the method of de Boer to determine the agglomerative state of the particles, since this allows for assaying simultaneously for plural classes of agglomerating analytes discriminated by their size (as taught by Gopinathan, column 3), which yields a more detailed representation of the agglomerative state of the particles than the method of de Boer, which yields only an average agglomerative state.

With respect to claims 2 and 3, see Gopinathan Figure 3, column 6, lines 5-15, column 9, lines 33-38.

With respect to claim 6, it is well known in the art that the use of backscattered energy (as taught by de Boer) is an equivalent to the use of adsorbed energy (as taught by Gopinathan).

With respect to claims 7-9, it would have been a matter of routine experimentation to arrive at the claimed ranges, since it has been held that where the general conditions of a claim are disclosed in the prior art, and the prior art discloses MHz ranges for similar samples, discovering the optimum or workable ranges involves only routine skill in the art. *In re Aller*, 105 USPQ 233.

With respect to claims 10 and 11, see Gopinathan Figures 1 and 4.

With respect to claims 12-14, the examiner takes Official Notice of the use of off-normal angles for scattered energy measurements, and their use in the backscattered method of de Boer would have been obvious to one having ordinary skill in the art at the time the invention was made.

With respect to claim 15, Gopinathan discloses the use of pulses (see abstract.

With respect to claims 17-18, Gopinathan discloses the use of standard sizes and comparison for calibration (column 10, lines 25-31).

With respect to claim 19, it is well known in the art to use scattering theory to predict particle size from scattering at a selected frequency.

With respect to the use of multiple pulses, the use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art.

### ***Double Patenting***

4. The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

5. Claims 1-11, 15-22, and 24-26 are rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-20 of U.S. Patent No. 5,969,237. Although the conflicting claims are not identical, they are not patentably distinct from each other because the claims are essential duplicates, except for the use of multiple pulse averaging. Claim 1 of the instant application is unpatentable over claim 1 of the Patent since the sole difference is that the Patent claim has an additional step of application to a process flow stream; broader application of the claimed invention would include the specific application claimed in the Patent, and would therefore be obvious. The use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art.

***Allowable Subject Matter***

6. Claim 23 is objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

7. The following is a statement of reasons for the indication of allowable subject matter: Claim 23 pertains to a bench-scale device which, in concert with the other elements of the claims, are not disclosed or made obvious in the prior art.

### ***Response to Arguments***

Applicant's arguments filed 19 March 2001 have been fully considered but they are not persuasive.

8. With respect to the use of multiple pulses, the use of averaging multiple signals to decrease the effect of errors in singular measurements is common in the testing art and would be obvious to one having ordinary skill in the art.
9. In response to applicant's argument that there is no suggestion to combine the references, the examiner recognizes that obviousness can only be established by combining or modifying the teachings of the prior art to produce the claimed invention where there is some teaching, suggestion, or motivation to do so found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. See *In re Fine*, 837 F.2d 1071, 5 USPQ2d 1596 (Fed. Cir. 1988) and *In re Jones*, 958 F.2d 347, 21 USPQ2d 1941 (Fed. Cir. 1992). In this case, both de Boer (page 58) and Gopinathan (column 6, lines 35-42; column 7, lines 30-40) measure the amount of backscattering of an acoustic signal and relate the amount to the agglomeration of a material (in de Boer, the precipitation of

asphaltenes, see page 55; in Gopinathan, the size of agglomerated particles, see column 6). Gopinathan provides a ultrasonic signalling technique that would provide more detailed representation of agglomeration in a fluid by the use of selected frequency ranges and the production of amplitude versus time data (see column 6, lines 35-36; column 7, lines 42-43), and would thus be desirable for use in the method of de Boer.

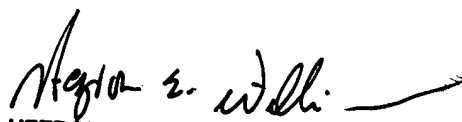
Any inquiry concerning this communication or earlier communications from the examiner should be directed to Michael Cygan whose telephone number is 703-305-0846. The examiner can normally be reached on 8:30-6 M-Th, alternate Fridays.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Hezron Williams can be reached on 703-305-4705. The fax phone numbers for the organization where this application or proceeding is assigned are 703-308-7722 for regular communications and 703-308-7722 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-306-3431.

mtc

mtc  
March 29, 2001

  
HEZRON WILLIAMS  
SUPERVISORY PATENT EXAMINER  
TECHNOLOGY CENTER 2800